National Institute of Environmental Health Sciences

Meteorological conditions and the diagnosis of occupationally related contact sensitizations

Author(s): Hegewald J, Uter W, Kranke B, Schnuch A, Pfahlberg A, Gefeller O
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Abstract:

OBJECTIVES: An accurate diagnosis of (occupational) contact sensitization by patch testing is a prerequisite for efficient preventive management. However, previously observed seasonal fluctuations in patch-test reactions indicate some influence of meteorological conditions. The present analysis aims at quantifying the possible impact of temperature and humidity on patch-test reactions to occupationally related allergens. METHODS: Clinical data from 61 780 patients tested with standard series allergens potentially related to occupational exposure from 1993 through 2001 were collected by a contact sensitization surveillance network.The association between the patch-test results and meteorological data (air temperature and humidity) collected at the time and the approximate location of the testing was analyzed in a multinomial logistic regression analysis. RESULTS: For three allergens (a dye and two biocides), the odds of irritant or doubtful allergic reactions increased during cold and arid conditions. Two of them (pphenylenediamine and formaldehyde) also showed an association between weak positive allergic reactions and such weather. In contrast, reactions to various adhesive, plastic, and rubber-related allergens were not associated with weather conditions. CONCLUSIONS: An overall increase in skin irritation, brought on by cold and dry conditions, may instigate an increase in positive reactions by leading doubtful allergic reactions to be (falsely) categorized as allergic for at least two of the considered allergens. For the most part, however, weather conditions were not associated with reactions to occupational allergens. Thus the validity of patch testing does not largely seem to be compromised by ambient meteorological conditions.

Source: http://www.ncbi.nlm.nih.gov/pubmed/18815718

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Meteorological Factors, Temperature

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : Austria;Germany

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Dermatological Effect

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content